Fisheries and Aquaculture in the face of Climate Change. A policy perspective

Ernesto Penas

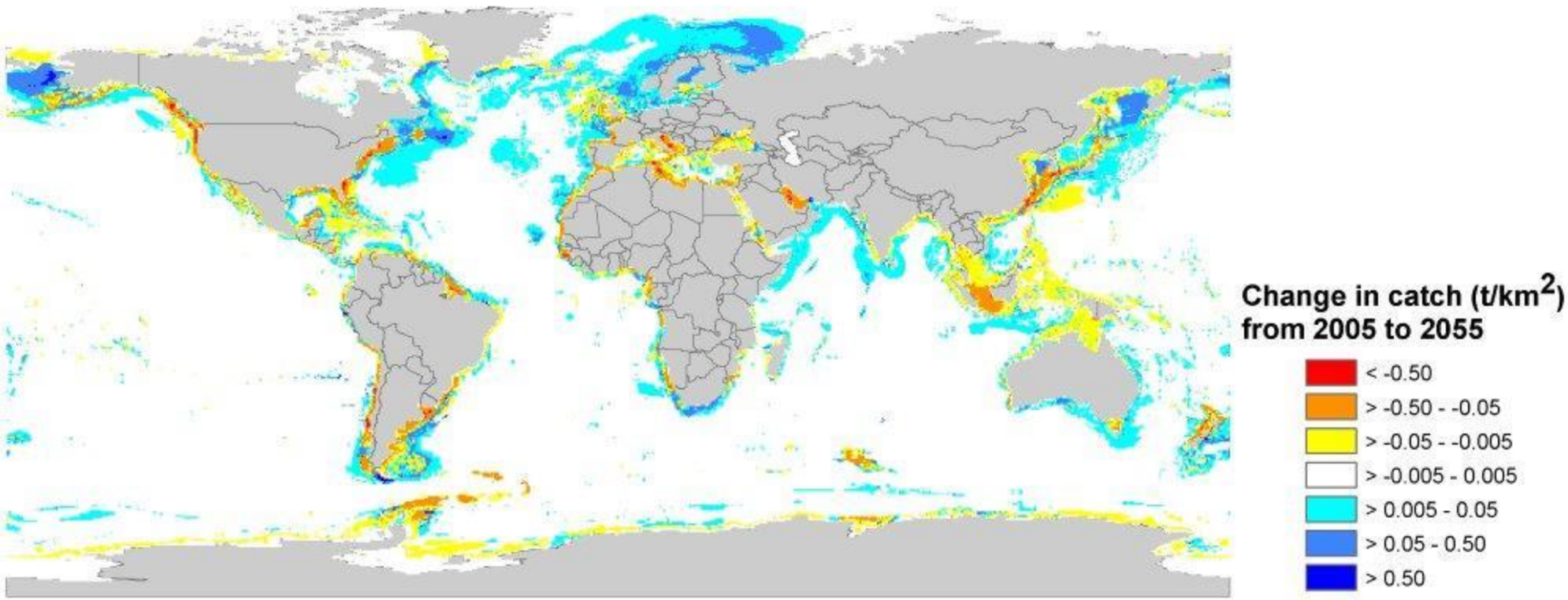
2020 International Forum on the Effects of Climate Change on Fisheries and Aquaculture

Rome, 25-26 February 2020

Structure

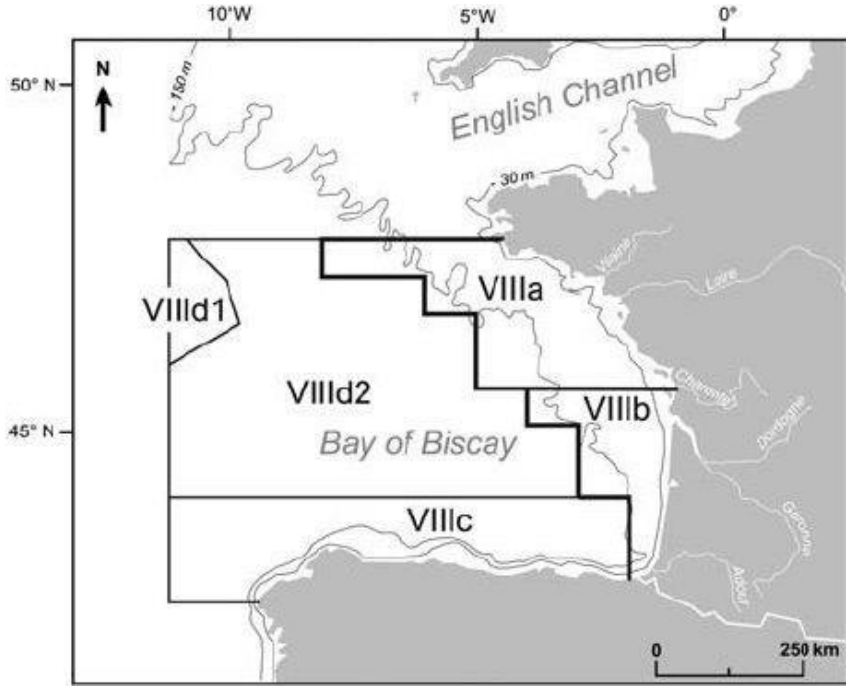
- Climate adaptation of the fisheries and aquaculture sector from a policy perspective
- The role of policy makers
- Main advice

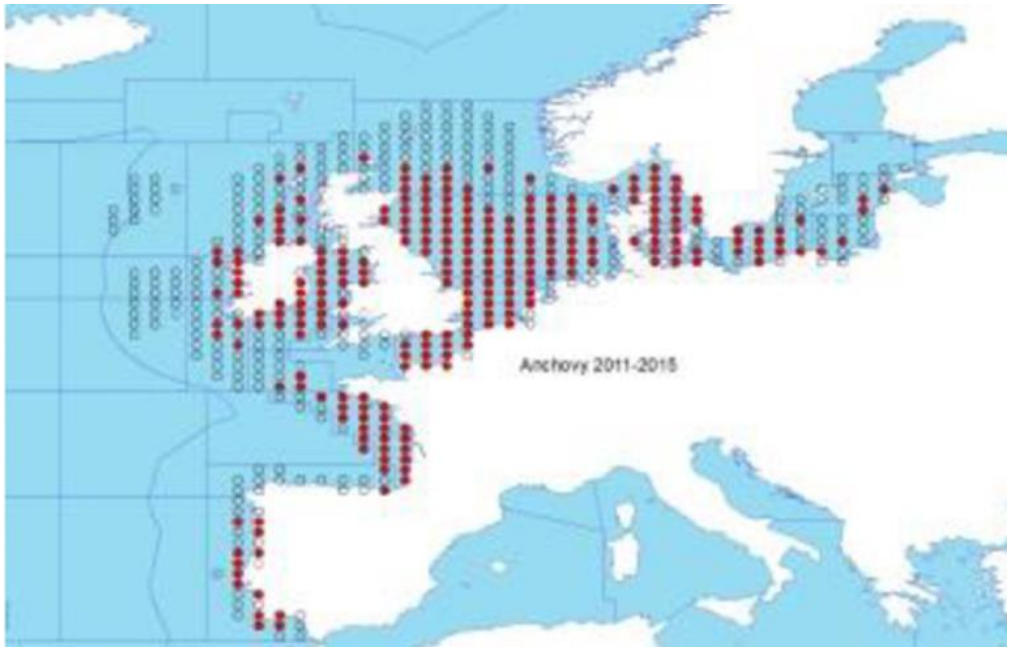
The most important challenge: the displacement of fish biomass



The effects of climate change on management (I): management areas becoming obsolete

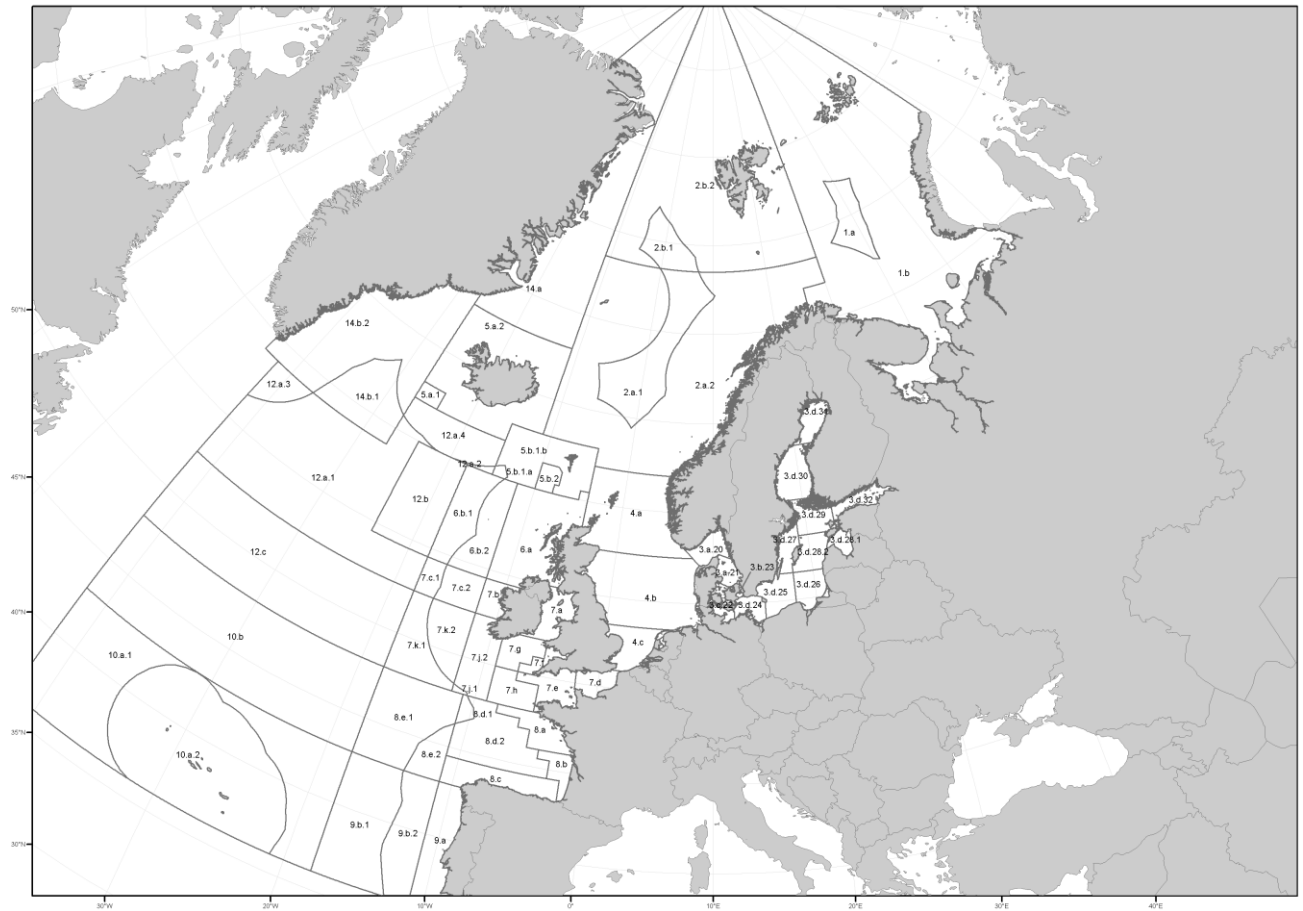
Species:	Anchovy *Engraulis encrasicolus*	**Zone:**	8 (ANE/08.)
Spain	29 700		
France	3 300		
Union	33 000		
TAC	33 000		Analytical TAC

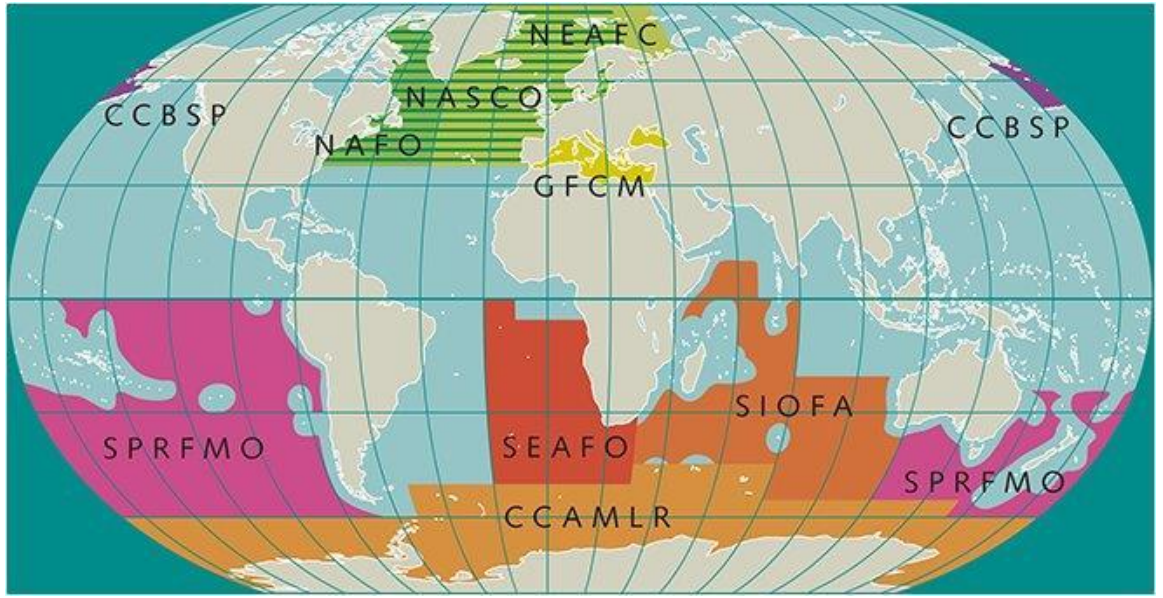




Source: ICES (2016)

The effects of climate change on management (II): Can fishing rights be fixed forever?

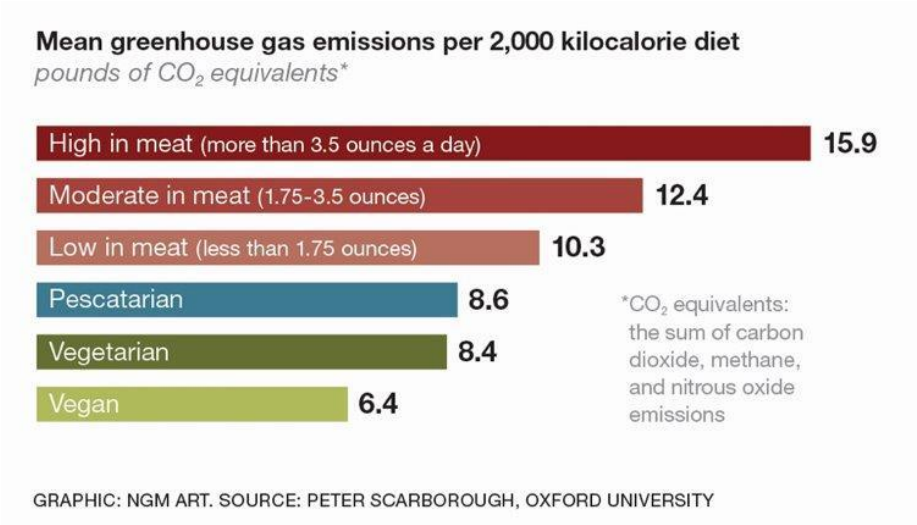




- Developing States and allocation of fishing rights under climate change
- Inter-RFMO management
- Fish entering unregulated areas
- Fishing before the fish goes
- Reinforcing RFMOs, a must

The effects of climate change on management (III): seafood, a more climate-friendly animnal protein

Food production and biodiversity loss



Agriculture run-off

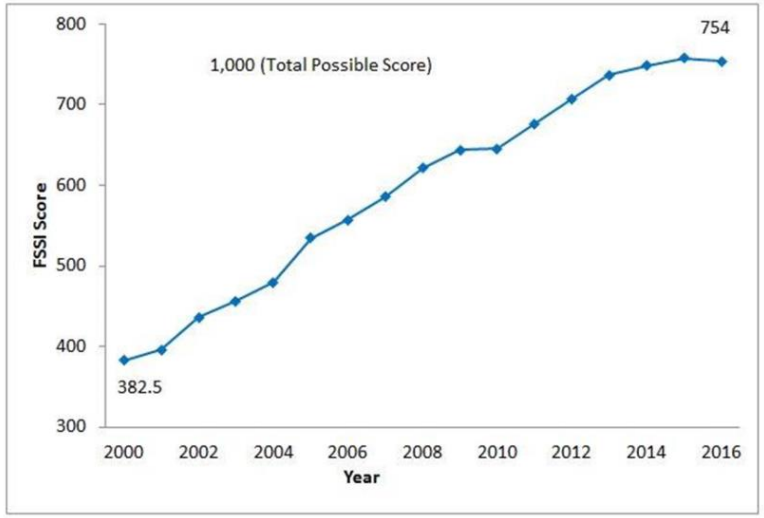
Environmental impact (*) of animal source foods (Hilborn et al., 2018):

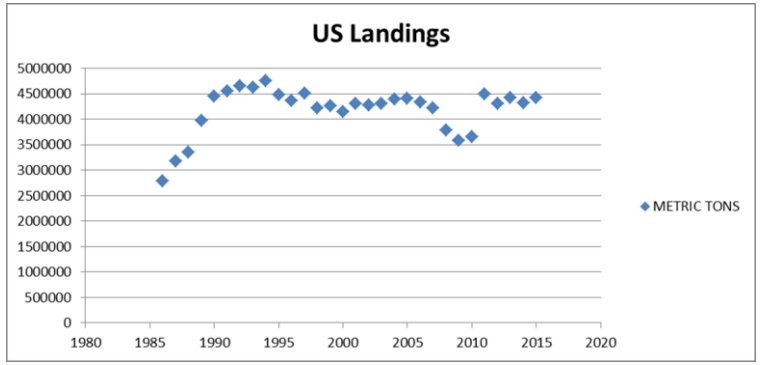
- **Mollusc aquaculture and small pelagic capture fisheries, lowest impact**
- **Beef production and catfish aquaculture (with water circulation) highest impact**

(*) energy use, greenhouse gas emisions, release of nutrients and acidifying compounds)

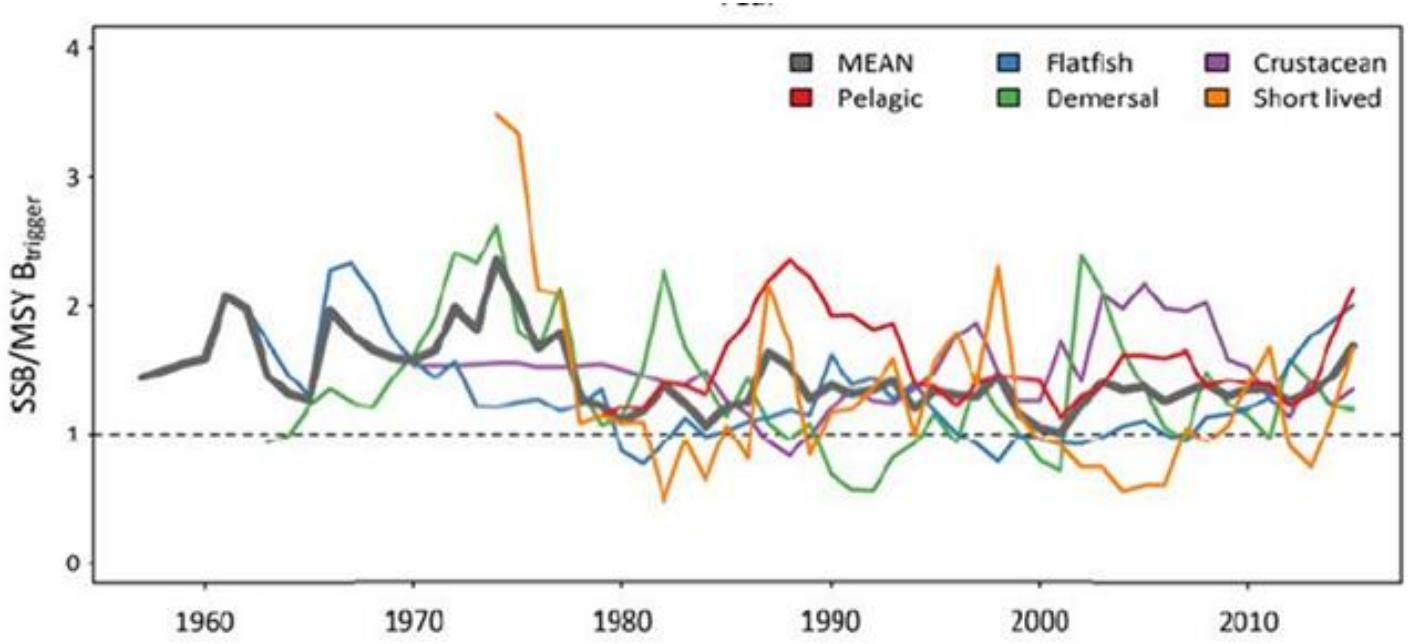
The animal protein of the future: more seafood and less beef

Is the single-stock management efficient to maximize the production of seafood?





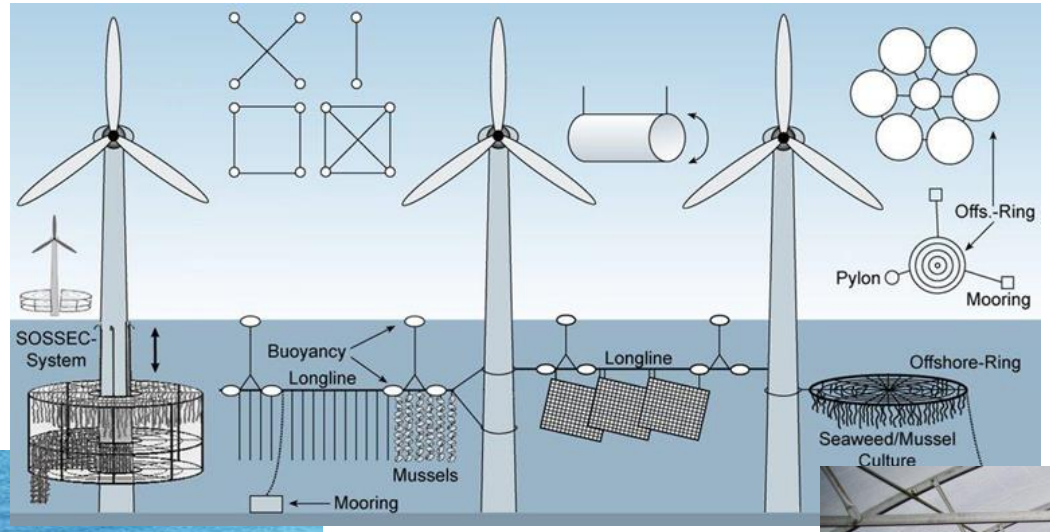
The US case: less o verfishing, more biomass at sea…but no more fish in the markets



Biomass indicator for groups of North Sea stocks. Source: ICES (2017)

The marine ecosystem: more stable than any of its components

The role of aquaculture



Mollusc aquaculture, the lowest carbon footprint of all animal protein sources (Hilborn et al., 2018)

The role of policy makers (I): Management in the information society: science vs. social media

ICES REPORT WGELECTRA 2018

ICES CM 2018/EOSG: 10

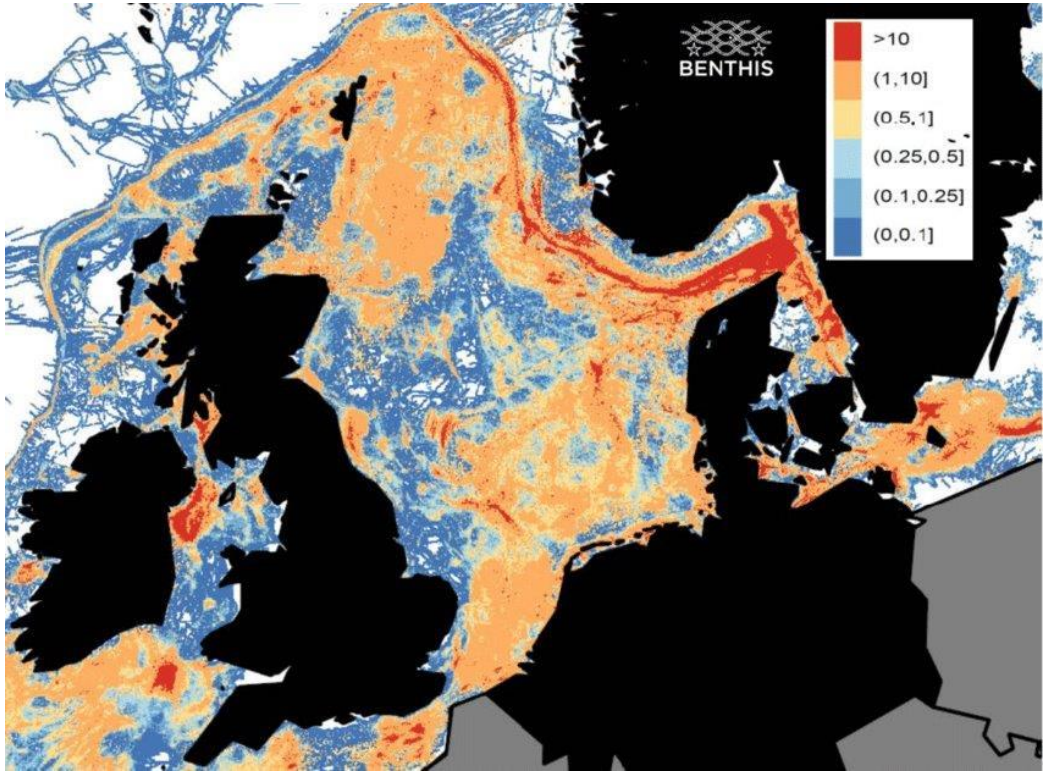
REF ACOM AND SCICOM

Report of the Working Group on Electric Trawling (WGELECTRA)

17 - 19 April 2018

IJmuiden, the Netherlands

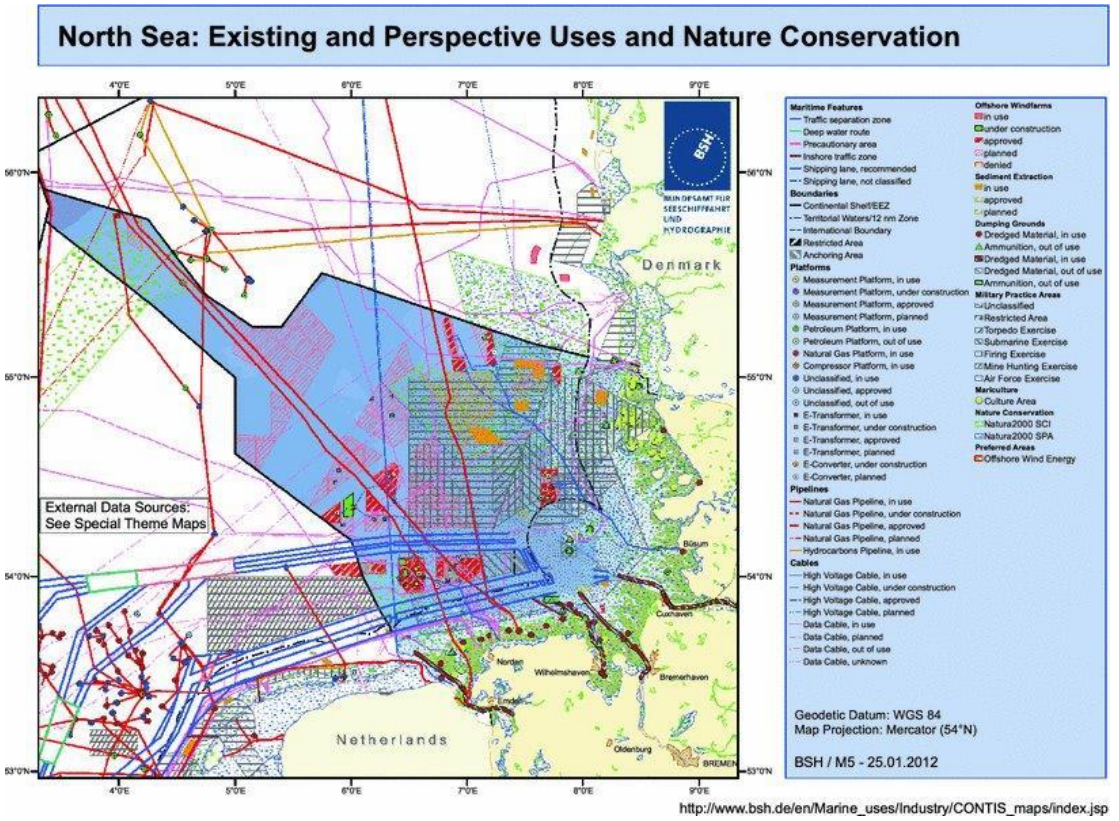
The role of managers (II): Fisheries and aquaculture management vs. Environmental policy



Bottom trawling in the North Sea (ICES, 2017)

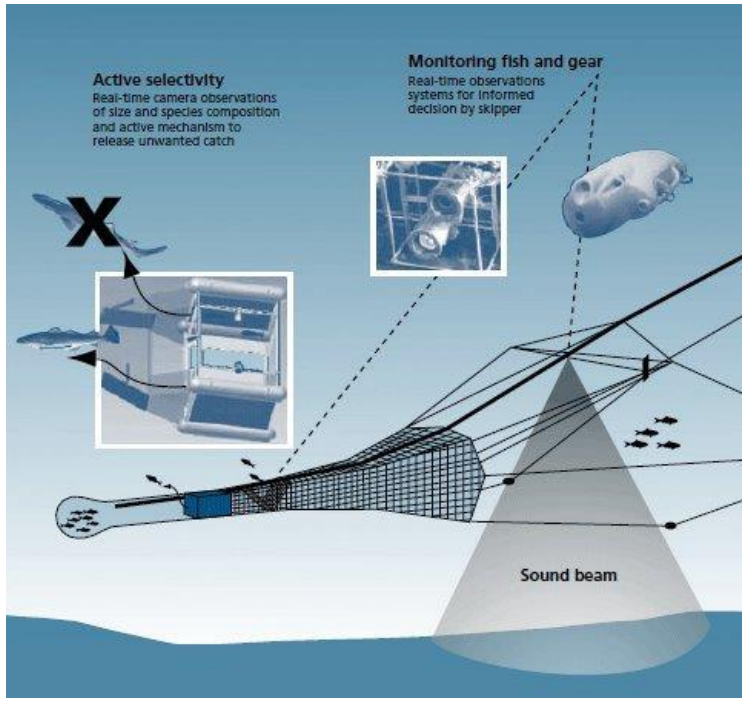
Who coordinates? How?

The role of managers (III): Fisheries and aquaculture in the wider context of marine spatial management



Who should have the right to occupy the maritime space?

The role of managers (IV): the structural policy to promote change or to preserve the *status quo*?



- Improving selectivity
- Reducing carbon footprint
- Reducing waste
- Improving marketing of low-value species

Main messages

- *Climate change, a challenge but an opportunity: marine protein is "the perfect protein". Promoting sustainable but <u>full</u> utilisation.*
- *Fisheries management should be dynamic and manage the ecosystem*
- *As the fish moves, the allocation of fishing rights is challenged: equity problems arise that must be addressed.*
- *Food security, an essential element for ocean management.*
- *Fisheries and aquaculture vs. Environmental conservation: adversaries or collaborators?*
- *Many policy strands must change because of global warming. The biggest challenge is **policy inertia.***